AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Original) A method for estimating a I/Q imbalance parameter of a receiver, comprising the steps of:

transmitting a first signal modulated by a first and a second modulated carrier through a modulation path at a transmitter;

receiving the first signal demodulated by a first and a second demodulated carrier respectively through a first and a second demodulation path at a receiver;

transmitting a second signal modulated by the first and the second modulated carrier through the modulation path at the transmitter;

receiving the second signal demodulated by the first and the second demodulated carrier respectively through the first and second demodulation path at the receiver; and

deriving the I/Q imbalance parameter of the receiver according to the first and the second signal transmitted by the transmitter and the demodulated first and the second signal received by the receiver; wherein the first and second signal are symmetrical in frequency domain.

2. (Original) The method of claim 1, wherein the first modulated carrier is a real-value modulated carrier, the second modulated carrier is an imaginary-value modulated carrier, the modulation path is one of I_channel and Q_channel, the first demodulation path is a I_channel, the second demodulation path is a Q_channel, the first demodulated carrier is a real-value demodulated carrier, and the second demodulated carrier is an imaginary-value demodulated carrier.

3. (Original) The method of claim 1, wherein the real part of the first signal is symmetric while the imaginary part of the first signal is anti-symmetric in frequency domain.

4. (Original) The method of claim 3, wherein amplitudes of the real and imaginary part of the first signal are the same in frequency domain.

5. (Original) The method of claim 1, wherein the real part of the second signal is anti-symmetric while the imaginary part of the second signal is symmetric in frequency domain.

6. (Original) The method of claim 5, wherein amplitudes of the real and imaginary part of the second signal are the same in frequency domain.

7. (Original) The method of claim 1, wherein the amplitude of the real and the imaginary part of the first and second signals are either +1 or -1.

8. (Original) A method for transmitter I/Q imbalance estimation comprising the steps of:

transmitting a third signal modulated by a first modulated carrier through a first modulation path;

transmitting a fourth signal modulated by a second modulated carrier through a second modulation path, wherein the third signal and the fourth signal are symmetrical in frequency domain;

receiving the third signal demodulated by a first demodulated carrier through a demodulation path;

receiving the fourth signal demodulated by a second demodulated carrier through the demodulation path; and

deriving an I/Q imbalance of the transmitter according to the demodulated third and the fourth signals.

9. (Original) The method of claim 8, wherein the first modulated carrier is a real-value modulated carrier, the second modulated carrier is an imaginary-value modulated carrier, the first modulation path is a I_channel, the second modulation path is a Q_channel, the demodulation path is one of I_channel and Q_channel, the first demodulated carrier is a real-value demodulated carrier ,and the second demodulated carrier is an imaginary-value demodulated carrier.

10. (Original) The method of claim 8, wherein the real and the imaginary part of the third and the fourth signal are symmetric in frequency domain.

11. (Original) The method of claim 10, wherein amplitudes of the real and imaginary part of the third and the fourth signal are the same in frequency domain.

12. (Original) An apparatus for estimation of transmitter I/Q imbalance in a communication system, the apparatus comprising:

a signal generator for generating a first and a second signals, wherein the first and the second signals are symmetrical in frequency domain;

a transmitter for transmitting the first signal modulated by a first modulated signal and the second signal modulated by a second modulated carrier through a first modulation path and a second modulation path; and

an estimator for deriving an I/Q imbalance parameter of the transmitter according the first signal and the second signal received by a receiver.

13. (Original) The apparatus of claim 12, wherein the signal generator further comprises an IFFT processor.

14. (Original) The apparatus of claim 12, wherein the real and the imaginary part of the first and the second signal are symmetric in frequency domain.

15. (Original) The apparatus of claim 12, wherein amplitudes of the real and the imaginary part of the first and the second signal are the same in frequency domain.

16. (Original) An apparatus for estimation of receiver I/Q imbalance in a communication system, comprising:

a signal generator for generating a first and a second signal;

a transmitter for transmitting the first signal modulated by a first modulated carrier and the second signal modulated by a second modulated carrier, wherein the first and the second signals are transmitted through a I_channel or a Q_channel;

a receiver for receiving the first signal demodulated by a first demodulated carrier through a I_channel and demodulated by a second demodulated carrier through a Q_channel, and receiving a second signal demodulated by a first demodulated carrier through a I_channel and demodulated by a second demodulated carrier through a Q_channel; and

an estimator for deriving an I/Q imbalance parameter of the receiver from the first and second signals received by the receiver and the first and second signals transmitted by the transmitter.

17. (Original) The apparatus of claim 16 the receiver further comprising a FFT processor.

18. (Original) The apparatus of claim 16, wherein the real part of the first signal is symmetric while the imaginary part of the first signal is anti-symmetric in frequency domain.

19. (Original) The apparatus of claim 18, wherein amplitudes of the real and the imaginary part of the first signal are the same in frequency domain.

20. (Original) The apparatus of claim 16, wherein the real part of the second signal is anti-symmetric while the imaginary part of the second signal is symmetric in frequency domain.

21. (Original) The apparatus of claim 20, wherein amplitudes of the real and the imaginary part of the second signal are the same in frequency domain.

22. (Original) The apparatus of claim 16, wherein the real and the imaginary part of the first and the second signal are either +1 or -1.